

## NEW SPECIES OF TRICHOPTERA FROM THE UNITED STATES

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During the past few years a number of undescribed Nearctic caddisflies have been found in material being determined from various sources. The purpose of the present paper is to provide names for these novelties. I wish to thank the following people who have submitted this material: Mr. James H. Baker, Baker, Oregon, Dr. J. F. Gates Clarke, Department of Entomology, Smithsonian Institution, Dr. R. L. Fischer, Department of Entomology, Michigan State University, Dr. J. G. Franclemont, Department of Entomology, Cornell University, Dr. S. W. Hitchcock, Connecticut Agricultural Experiment Station, Dr. R. W. Hodges, Insect Identification & Parasite Introduction Research Branch, U.S. Department of Agriculture, and Dr. Ellis G. MacLeod, Biological Laboratories, Harvard University.

## HYDROPSYCHIDAE

*Aphropsyche monticola*, new species

This, the second species placed in the genus *Aphropsyche*, is closely related to *A. doringa* (Milne). *A. monticola* differs in lacking the strong spine on the posterior margin of the tenth tergum and in possessing a pair of arms overlapping the aedeagus dorsally at its mid-length.

Length of forewing 8-9 mm. Dorsum of head, thorax and abdomen black; head beneath antennae, venter of thorax and abdomen, and legs brownish yellow; antennae fuscus. Wings covered uniformly with brownish setae. Fifth abdominal segment with a pair of filamentous processes arising anteroventrally, more than half as long as segment.

Male genitalia (Fig. 1). Ninth segment narrow, with a lateral projection anteriorly and a ventral shelf posteriorly. Tenth tergum with posterior margin heavily sclerotized, this portion widely separated dorsomesally. Claspers long and cylindrical, curving slightly more dorsally near apex, apical segment poorly set off; in posterior aspect, apex broadened and developed into a mesal sub-apical tooth. Aedeagus complex; ventral tube becoming flattened and scoop-shaped apically, above tube a single process with a single dorsal subapical barb, above process a pair of long slender rods not quite as long as process; at about midlength the ventral tube bears a pair of processes which meet above the other processes, holding all in place.

Female eighth abdominal sternum completely divided mesally, halves nearly meeting at base, tapering toward lateral line apically. Ninth segment without any clasper groove or receptacle.

Holotype, male: Virginia, Shenandoah National Park, Hogcamp Brook just below Skyline Drive, 24 June 1961, R. A. & O. S. Flint, Jr. United States National Museum type 67409.

Allotype, female: same, but 8 July 1961.

Paratypes: 4 males, same data as holotype. 2 males, same data as allotype.

#### ***Hydropsyche macleodi*, new species**

Very similar to *H. slossonae* Banks, from which it differs primarily in the structure of the aedeagus. In *macleodi* the dorsolateral arm possesses near the base a small lobe that is capped by a few spicules and the apical spine of the arm is directed toward the tip of the aedeagus, and the apex of the tube lacks the ventral pair of spicule filled pockets.

Length of forewing 7-9 mm. Specimens in alcohol, and so now uniformly brown.

Male genitalia (Fig. 2). Ninth segment annular, with both anterior and posterior margins produced ventrally. Tenth tergum with a low crest middorsally, apical processes well developed, semicircular in dorsal aspect. Clasper long and cylindrical, apical segment tapering to a sharp point. Aedeagus Z-shaped, with only 1 pair of apical spicule pockets (evaginated in holotype), dorsolateral arm with a basal lobe capped by a few spicules, apical spine directed toward apex of aedeagus and arising subapically from a small spiculiferous lobe.

Holotype, male: North Carolina, Blue Ridge Parkway, Crabtree Meadows Campground, 9 June 1961, R. A. & O. S. Flint, Jr. United States National Museum type 67410.

Paratypes: 3 males, same data, but 5-6 June 1962, E. G. MacLeod.

#### ***Hydropsyche ophthalmica*, new species**

This rather distinctive small species is a member of the *H. scalaris* group and seems closest to *H. fattigi* Ross from which it differs in possessing large eyes, and larger, more dorsally produced lateral processes of the aedeagus. The type may be a bit teneral, thus appearing paler than a fully mature specimen.

Length of forewing 8 mm. Eyes large, about 1.5 times as wide as interocular width. Head, thorax and coxae fuscus with white setae, appendages pale brown, wings pale brown with faint dark irrorations in the typical pattern.

Male genitalia (Fig. 3). Ninth segment annular with setae along posterior margin. Tenth tergum narrow, tip slightly produced into a dorsal point. Claspers cylindrical, apical segment poorly delimited. Aedeagus with lateral processes produced well above dorsal margin of the stem; in ventral aspect, lateral processes wider than the stem of aedeagus, well separated mesally.

Holotype, male: West Virginia, along Cacapon River about 2 miles south of Capon Bridge, at black light, 13 May 1963, W. D. Field & O. S. Flint, Jr. United States National Museum type 47411.

#### ***Hydropsyche potomacensis*, new species**

This species belongs to the *H. depravata* group, and is probably most closely related to that species. However, *potomacensis* differs in not

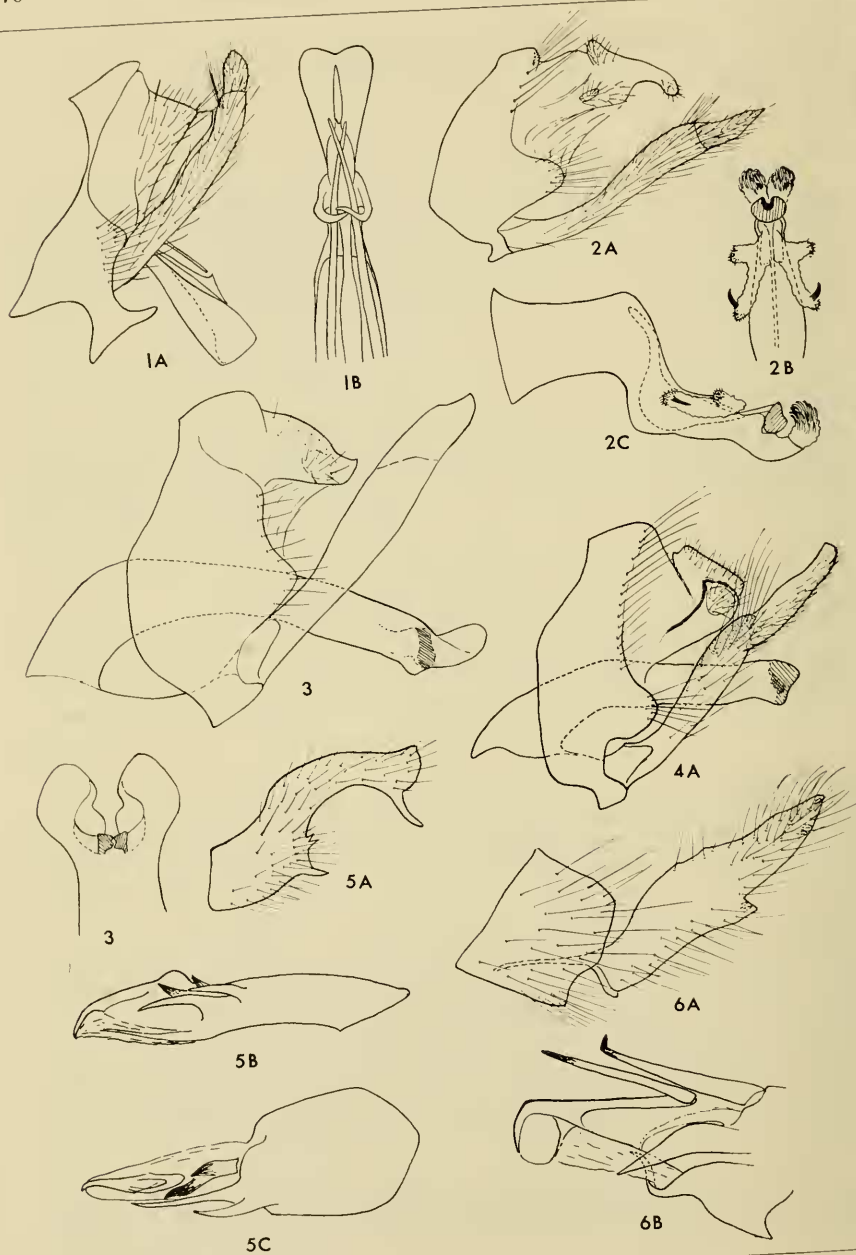


Fig. 1, *Ahropsyche monticola* n. sp. A, male genitalia, lateral, B, aedeagus, dorsal; fig. 2, *Hydropsyche macleodi* n. sp. A, male genitalia, lateral, B, tip of aedeagus, dorsal; C, aedeagus, lateral; fig. 3, *Hydropsyche ophthalmica* n. sp. A, male genitalia, ventral; fig. 4, *Hydropsyche potomacensis* n. sp. A, male genitalia, lateral, B, tip of aedeagus, ventral.

having the tip of the aedeagus greatly enlarged ventrally, and in having a declivous tenth tergum.

Length of forewing 11–12 mm. Body brown, legs brownish-yellow, antennae with dorsal V-marks on basal segments. Wings spotted with brown and cream-colored setae in the typical pattern.

Male genitalia (Fig. 4). Ninth segment with a conspicuous row of setae along its posterior margin. Tenth tergum declivous, with an elongate dorsomesal lobe and a pair of lateral setal warts. Claspers cylindrical, with apical segment almost  $\frac{2}{3}$  as long as basal segment. Aedeagus with basal portion angled at about  $135^\circ$  from apical portion, apex slightly decurved, divided and with a small central lobe internally.

Holotype, male: Virginia, Highland County, bridge on Route 220 over East Fork of Potomac River, 18–20 May 1963, W. D. Field & O. S. Flint, Jr. United States National Museum type 67412.

Paratypes: 14 males, same data.

#### HYDROPTILIDAE

##### *Ochrotrichia okanoganensis*, new species

Closely related to *O. logana* (Ross), this species may be recognized by the structure of the tenth tergum, especially by the ventral process which is twisted beneath the tergum.

Length of forewing 3.5 mm. Wings fuscus, with a few small transverse patches of whitish hairs.

Male genitalia (Fig. 6). Ninth segment incomplete dorsally, almost quadrate in lateral aspect. Clasper pointed apically, apex produced into a small mesally directed spine, ventral margin with a lobe at midlength bearing a few dark spines, several spines below apex. Tenth tergum dorsally with 2 elongate, black-tipped spines, distal one almost attaining apex of tergum; basal sinistral spine curving entirely across venter of tergum, lateral spine broad and directed slightly ventrad.

Holotype, male: Washington, Okanogan County, Winthrop, 26 July 1962, J. F. Gates Clarke. United States National Museum type 47413.

##### *Ochrotrichia dactylophora*, new species

A species that is in the *O. confusa* section of the genus, perhaps closest to *O. spinosa* Ross. From the latter and all other described species in the genus, it differs in the long apicoventral process of the clasper and in the details of the processes of the tenth tergum, most especially the two lateral spines.

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*ensis* n. sp. A, male genitalia, lateral; fig. 5, *Ochrotrichia dactylophora* n. sp. A, male clasper, lateral, B, tenth tergum, lateral, C, tenth tergum, dorsal; fig. 6, *Ochrotrichia okanoganensis* n. sp. A, male ninth segment and clasper, lateral; B, tenth tergum, lateral.

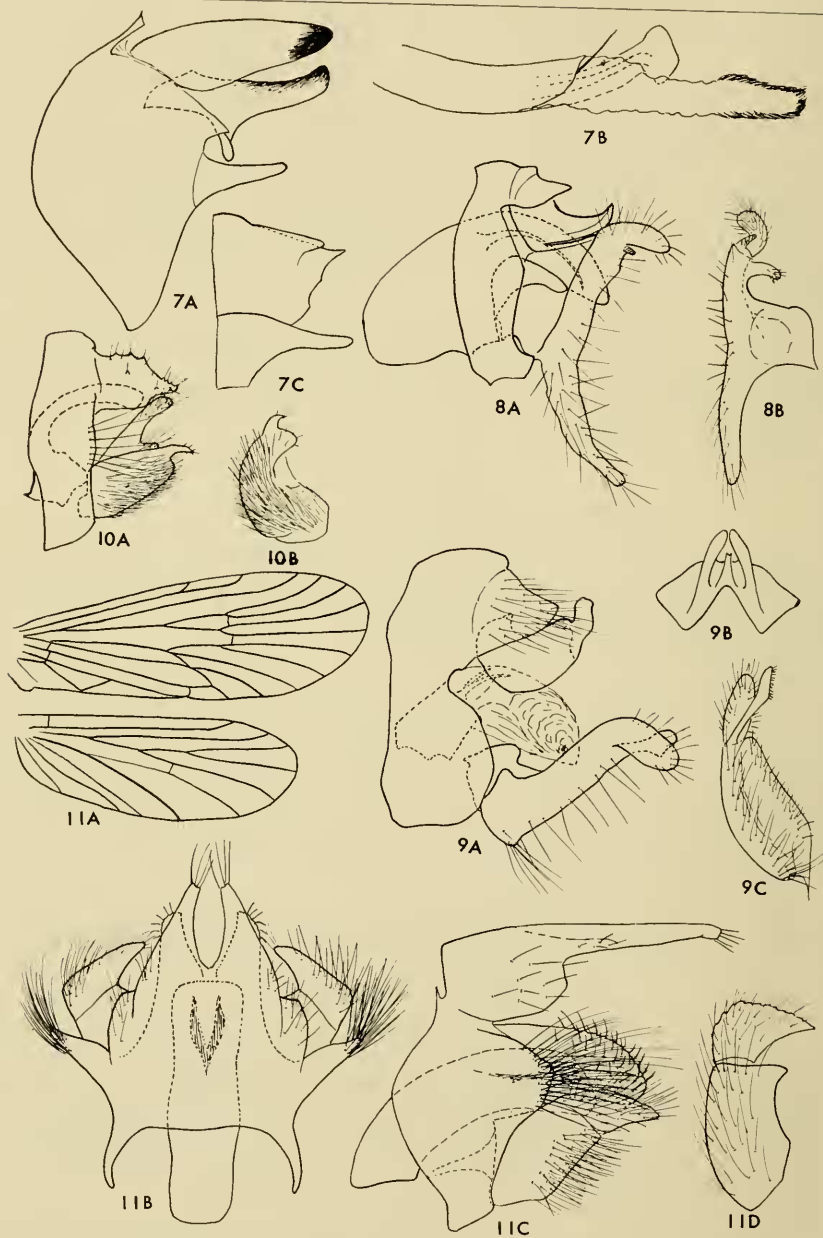


Fig. 7, *Limnephilus apache* n. sp. A, male genitalia, lateral, B, aedeagus, lateral, C, female genitalia, lateral; fig. 8, *Athripsodes ruthae* n. sp. A, male genitalia, lateral, B, clasper, caudal; fig. 9, *Athripsodes cama* n. sp. A, male genitalia,

Length of the forewing, 2.5 mm. Wings fuscus, with a few transverse patches of white hairs.

Male genitalia (Fig. 5). Ninth segment incomplete dorsally, expanded apicoventrally to twice dorsal width. Clasper sigmoid in lateral aspect with a strong apicoventral tooth directed ventromesally, with a spine ventrally at near mid-length and several spines mesally. Tenth tergum dorsally with 2 short black-tipped spines; laterally with 2 spines, dorsal spine standing out conspicuously and about half length of more appressed ventral spine; apically elongate and developed into a decurved structure.

Holotype, male: Arizona, Coconino County, West Fork, 16 miles southwest of Flagstaff, 6500 ft. elevation, 5 August 1961, R. W. Hodges. United States National Museum type 67414.

Paratypes: 2 males, Arizona, Portal, Southwest Research Station, 16 June 1963, J. H. Baker. 5 males, same data, but 11 July 1963, P. J. Spangler. 32 males, New Mexico, nr. Silver City, Cherry Creek Recreation Area at black light, 9 July 1963, P. J. Spangler.

#### LIMNEPHILIDAE

#### *Limnephilus apache*, new species

This species is related to *L. sublunatus* Prov., but differs in having less strongly arched cerci and a narrower tenth tergum.

Length of forewing 13 mm. Pale brown; forewings with white markings in cell  $Cu_2$ , apically in cell 1st M, around the cord, and in cell  $M_2$ . Basal segment of foretarsus in male  $1\frac{1}{2}$  times length of second segment.

Male genitalia (Fig. 7 A, B). Eighth tergum posteromesally with a patch of scabrous black setae. Clasper developed into a rather long digitate lobe. Cercus elongate, slightly tapering, apex blackened and slightly produced mesally. Tenth tergum extending as far posteriad as cercus, considerably expanded basally, becoming much narrowed beyond, dorsal margin blackened. Aedeagus with lateral arms formed of a basal sclerotized portion which bears an apical seta, and an apical membranous portion which is margined dorsally and ventrally with a dense row of short setae; central tube slightly upturned, apical segment short and considerably expanded.

Female genitalia (Fig. 7C). Cercus basally united with tenth segment, tips extending freely. Tenth segment tubular, divided on middorsal line, projecting further caudad dorsally than ventrally. A digitate lobe on each side extending caudad beneath tenth segment.

Holotype, male: Arizona, Coconino Co., Fort Valley  $7\frac{1}{2}$  mi. N.W. Flagstaff, 7350 ft. elevation, 9 August 1961, J. G. Franclemont. United States National Museum type 67738.

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lateral, B, tenth tergum, caudal, C, clasper, caudal; fig. 10, *Lepidostoma bakeri* n. sp. A, male genitalia lateral, B, clasper, caudal; Fig. 11, *Adicrophleps hitchcocki* n. sp. A, wing venation, B, male genitalia, dorsal, C, genitalia, lateral, D, clasper, caudal.



Allotype, female: same data.

Paratypes: 1 male, 2 females, same data. 1 male, New Mexico, Ruidoso, 2 July 1961, G. C. Eikwort. Paratypes in the collections of J. G. Franclemont and Michigan State University.

#### LEPTOCERIDAE

##### *Athripsodes cama*, new species

*Athripsodes cama* is related to *A. resurgens* (Walker), but lacks the ventral lobe of the clasper and has a totally different tip on the tenth tergum.

Length of forewing 10–12 mm. Specimens totally denuded; coloration thus unknown.

Male genitalia (Fig. 9). Cercus broadly triangular, apex rather blunt. Tenth tergum with apex upright and divided mesally, mesal incision with perpendicular process. Clasper lacking ventral process, with a thin mesal expansion, mesal process long and slender. Aedeagus C-shaped, mostly membranous apically, with a pair of short spines at midlength.

Holotype, male: North Carolina, Lake Waccamaw, 23 March 1952, W. J. Gehweiler. United States National Museum type 67415.

Allotype, female: same data.

Paratype, male: North Carolina, Faison, 8 August 1952, R. E. Howell.

##### *Athripsodes ruthae*, new species

The species is a member of the complex containing *A. annulicornis* (Steph.) and is closest to *A. scopulosus* Leonard. From *scopulosus*, *ruthae* differs in having the ventral process of the clasper almost as long as the dorsal part of the segment, in having the mesal lobe of the basal segment of the clasper slender, in lacking the 2 membranous lobes between the cerci, and in having a slender rod along the ventral margin of the tenth tergum.

Length of forewing 9 mm. Coloration generally fuscus, an indication of paler setae at anal angle of forewing, basal segments of antennae conspicuously annulate.

Male genitalia (Fig. 8). Cercus trianguloid, partially separated dorsally. Tenth tergum with tip slightly upturned, a slender, rod-like process appressed to ventral margin. Clasper with ventral angle formed into a long rugose process, mesal process very short, mesal lobe slender. Aedeagus C-shaped, basally inflated, with a single curving internal spine.

Holotype, male: Massachusetts, East Amherst, at black light along Fort River, 27 June 1962, Ruth A. Flint, O. S. Flint, Jr., and J. F. Hanson. United States National Museum type 67416.

Paratype, male: New York, Tompkins County, Slaterville Springs, July 1960, Ruth A. Flint.

## LEPIDOSTOMATIDAE

**Lepidostoma bakeri**, new species

This is another species of the *L. unicolor* group, and is closely related to *L. knulli* Ross. The ventral aspect of the clasper of *bakeri* differs in having a more rounded lateral margin and in having the tip developed into a mesally directed hook surmounting a thin lobe.

Length of forewing 7-8 mm. Color of specimens in alcohol, uniformly brown. Legs and wings without modifications; maxillary palpus a single segment held straight forward, concave mesally and filled with scale-like setae; basal segment of antenna about as long as head, with an opening basomesally through which a small, spherical structure may be everted.

Male genitalia (Fig. 10). Ninth segment annular. Tenth tergites rugose, tapering uniformly in lateral aspect, diverging in dorsal aspect. Clasper with basal process erect and about as long as clasper, dorsal process arising from base of basal process and appressed to body at clasper, apex of clasper with a single pointed process in lateral aspect, in ventral aspect with an apical hook surmounting a thin rounded lobe, lateral margin evenly curved.

Holotype, male: Arizona, Portal, Southwest Research Station, 16 June 1963, J. H. Baker. United States National Museum type 67417.

Paratype, male: same data.

## BRACHYCENTRIDAE

**Adicrophleps**, new genus

Ocelli absent. Maxillary palpus 2-segmented, segments short and subequal. Spurs 2,2,2. Forewing of male with  $R_1$  lacking angulation beneath stigma,  $R_{4+5}$  branching at r-m, 2A touching wing margin before angling sharply to 1A, 3A greatly reduced or lacking. Hindwing of male with 3 branches from  $R_s$ , M and  $Cu_1$  unbranched. Sixth sternum of male with a short, quadrate mesal process. Male genitalia with clasper 2-segmented, cercus produced into a long dorsomesal process.

Type species: *Adicrophleps hitchcocki* Flint

The genus seems most closely related to *Micrasema*, but also combines characteristics of *Brachycentrus* and unique structures. The branching of  $R_{4+5}$  at r-m is characteristic of *Brachycentrus*, whereas the configuration of the anal veins in the forewing and  $Cu_1$  in the hindwing are unique. The structure of the maxillary palpus, and the spur count are typical of *Micrasema*, most especially *aspilus* which also possess a 2-segmented clasper.

**Adicrophleps hitchcocki**, new species

As mentioned above the species seems closest to *M. aspilus* (Ross), but differs in many venational characteristics and details of the male genitalia.

Length of forewing 4.5 mm. Color of specimen in alcohol very dark, almost black.



Male genitalia (Fig. 11). Posterior margin of ninth segment developed into a lateral, hirsute lobe. Cercus bearing a basoventral lobe, and a long dorsomesal process. Tenth tergum divided mesally, lateral lobes bearing short upright setae. Clasper with anterior margin appressed to ninth segment, apical segment developed into a posteromesal point. Aedeagus slightly arcuate, tubular.

Holotype, male: Connecticut, Portland, 13 May 1963, S. W. Hitchcock. United States National Museum type 67418.

Paratypes: 2 males, same data. 1 male, Connecticut, Mt. Carmel, brooklet in Sleeping Giant State Park, 5 May 1961, S. W. Hitchcock.

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#### ANNOUNCEMENT

Short scientific articles of less than one printed page, with or without small illustrations, are urgently needed and will be published promptly. A printed page equals approximately 50 typewritten lines. See page 201 of this issue for format.—Editor